Zhao Zhao

Email Address:	zhaozhao@u.nus.edu
Phone Number:	+1-3136232730, +86-18670388872
Google Scholar:	https://scholar.google.com/citations?user=1BHTLgkAAAAJ&hl=en
ResearchGate:	https://www.researchgate.net/profile/Zhao-Zhao-36
LinkedIn	https://www.linkedin.com/in/zhao-zhao-7570212a0/

Educational Backgrounds

2020.08-2023.07	National University of Singapore (Singapore)	PhD in Civil and Environmental Engineering
2017.09-2020.06	Central South University (China)	MEng in Civil Engineering
2013.09-2017.06	Central South University (China)	BEng in Civil Engineering

Work Experience

2023.07-2024.03	National University of Singapore (Singapore)	Research Fellow
2024.04-up to now	University of Michigan-Dearborn	Research Fellow

Research Areas

Structural reliability; Random field modelling; Random vibration; Reliability-based design; Metamodeling

Research Projects

[1] Time-dependent reliability analysis of CRTS II track slab structure
Supervisors: Prof. Zhao-Hui Lu and Prof. Yan-Gang Zhao 2017.09-2020.06

[2] Space-time extreme value statistic of ocean waves
Supervisor: Prof. Ying Min Low 2020.08-2023.07

[3] Reliability analysis of floating offshore wind turbine structure
Supervisor: Prof. Ying Min Low 2023.07-2024.03

Reviewers for international journals and conferences

Reliability Engineering & System Safety; Computer Methods in Applied Mechanics and Engineering; Structural and Multidisciplinary Optimization; Journal of Aerospace Engineering; Computer Modeling in Engineering & Sciences

Publications

Doctoral thesis:

[1] **Zhao Zhao**. Efficient Analytical Methods for Evaluating the Space-time Extremes of Random Fields. [Ph.D. thesis]. National University of Singapore 2023.

Journal articles:

[1] Zhao-Hui Lu**, Zhao Zhao**, Xuan-Yi Zhang*, Chun-Qing Li, Xiao-Wen Ji, Yan-Gang Zhao. Simulating stationary non-Gaussian process based on unified Hermite polynomial model. *Journal of Engineering Mechanics.* 2020, 146(7): 04020067.

[2] **Zhao Zhao**, Zhao-Hui Lu*, Chun-Qing Li, Yan-Gang Zhao. Dynamic reliability analysis for non-stationary non-Gaussian response based on the bivariate vector translation process. *Probabilistic Engineering Mechanics*. 2021, 66: 103143.

[3] Ming-Na Tong, Yan-Gang Zhao, **Zhao Zhao***. Simulating strongly non-Gaussian and non-stationary processes using Karhunen–Loève expansion and L-moments-based Hermite polynomial model. *Mechanical Systems and*

Signal Processing. 2021, 160: 107953.

[4] **Zhao Zhao**, Zhao-Hui Lu*, Chun-Qing Li, Yan-Gang Zhao. Efficient simulation method for first passage problem of linear systems subjected to non-Gaussian excitations. *Journal of Engineering Mechanics.* 2022, 148(1): 04021128.

[5] **Zhao Zhao**, Zhao-Hui Lu*, Yan-Gang Zhao. Time‐variant reliability analysis using moment‐based equivalent Gaussian process and importance sampling. *Structural and Multidisciplinary Optimization*. 2022, 65:73.

[6] **Zhao Zhao**, Zhao-Hui Lu*, Yan-Gang Zhao. An efficient extreme value moment method combining adaptive Kriging model for time-variant imprecise reliability analysis. *Mechanical Systems and Signal Processing.* 2022, 171: 108905.

[7] **Zhao Zhao**, Yan-Gang Zhao, Pei-Pei Li*. Efficient approach for dynamic reliability analysis based on uniform design method and Box-Cox transformation. *Mechanical Systems and Signal Processing.* 2022, 172: 108967.

[8] **Zhao Zhao**, Zhao-Hui Lu*, Yan-Gang Zhao. Simulating multivariate stationary non-Gaussian process based on wavenumber–frequency spectrum and unified Hermite polynomial model. *Probabilistic Engineering Mechanics*. 2022, 69: 103272.

[9] Pei-Pei Li, Yan-Gang Zhao, **Zhao Zhao***. Efficient method for fully quantifying the uncertainty of failure probability. *Computer Methods in Applied Mechanics and Engineering*. 2022, 399: 115345.

[10] **Zhao Zhao**, Zhao-Hui Lu*, Xuan-Yi Zhang, Yan-Gang Zhao. A nested single-loop Kriging model coupled with subset simulation for time-dependent system reliability analysis. *Reliability Engineering and System Safety*. 2022, 228: 108819.

[11] **Zhao Zhao**, Yan-Gang Zhao, Pei-Pei Li*. A novel decoupled time-variant reliability-based design optimization approach by improved extreme value moment method. *Reliability Engineering and System Safety*. 2022, 229: 108825.

[12] **Zhao Zhao**, Zhao-Hui Lu*, Yan-Gang Zhao. An efficient method for predictive-failure-probability-based global sensitivity analysis. *Structural and Multidisciplinary Optimization*. 2022, 65:329.

[13] **Zhao Zhao**, Ying Min Low*. Efficient method for approximating the joint extreme value distribution of multivariate stationary Gaussian processes. *Journal of Engineering Mechanics.* 2023, 149(4): 04023020.

[14] **Zhao Zhao**, Zhao-Hui Lu*, Xuan-Yi Zhang, Yan-Gang Zhao. An efficient extreme value moment method for estimating time-dependent profust failure probability. *Engineering with Computers*. 2024, 40: 423–436.

[15] **Zhao Zhao**, Zhao-Hui Lu*, Xuan-Yi Zhang, Yan-Gang Zhao. Simulating Multivariate Multidimensional Homogenous Non-Gaussian Field based on Unified Hermite Polynomial Model. *Journal of Engineering Mechanics.* 2023, 149(7): 06023001.

[16] **Zhao Zhao**, Zhao-Hui Lu*, Yan-Gang Zhao. An efficient interval moment method for uncertainty propagation analysis with non-parameterized probability-box. *Acta Mechanica*. 2023, 234: 3321–3336.

[17] **Zhao Zhao**, Zhao-Hui Lu*, Yan-Gang Zhao. A Kriging-assisted two-stage adaptive radial-based importance sampling method for random-interval hybrid reliability analysis. *Structural and Multidisciplinary Optimization*. 2023, 66:136.

[18] Pei-Pei Li, Yi Zhang*, Yan-Gang Zhao, **Zhao Zhao**, Enjian Cai. An information reuse-based method for reliability updating. *Reliability Engineering and System Safety*. 2023, 239: 109536.

[19] **Zhao Zhao**, Ying Min Low*. Extreme value analysis of high-dimensional Gaussian vector processes. *Journal of Sound and Vibration*. 2023, 567: 118067.

[20] **Zhao Zhao**, Zhao-Hui Lu*, Yan-Gang Zhao. P-AK-MCS: Parallel AK-MCS method for structural reliability analysis. *Probabilistic Engineering Mechanics*. 2024, 75: 103573.

[21] **Zhao Zhao**, Zhao-Hui Lu*, Yan-Gang Zhao. Conditional simulation of stationary non-Gaussian processes based on unified Hermite polynomial model. *Probabilistic Engineering Mechanics*. 2024, 76: 103609.

[22] **Zhao Zhao**, Zhao-Hui Lu*, Yan-Gang Zhao, Teng-Fei Xu, Yan-Fei Zhang. A novel random-interval hybrid

reliability analysis method combining active learning Kriging and two-phase subset simulation. *Structures*. 2024, 63: 106383.